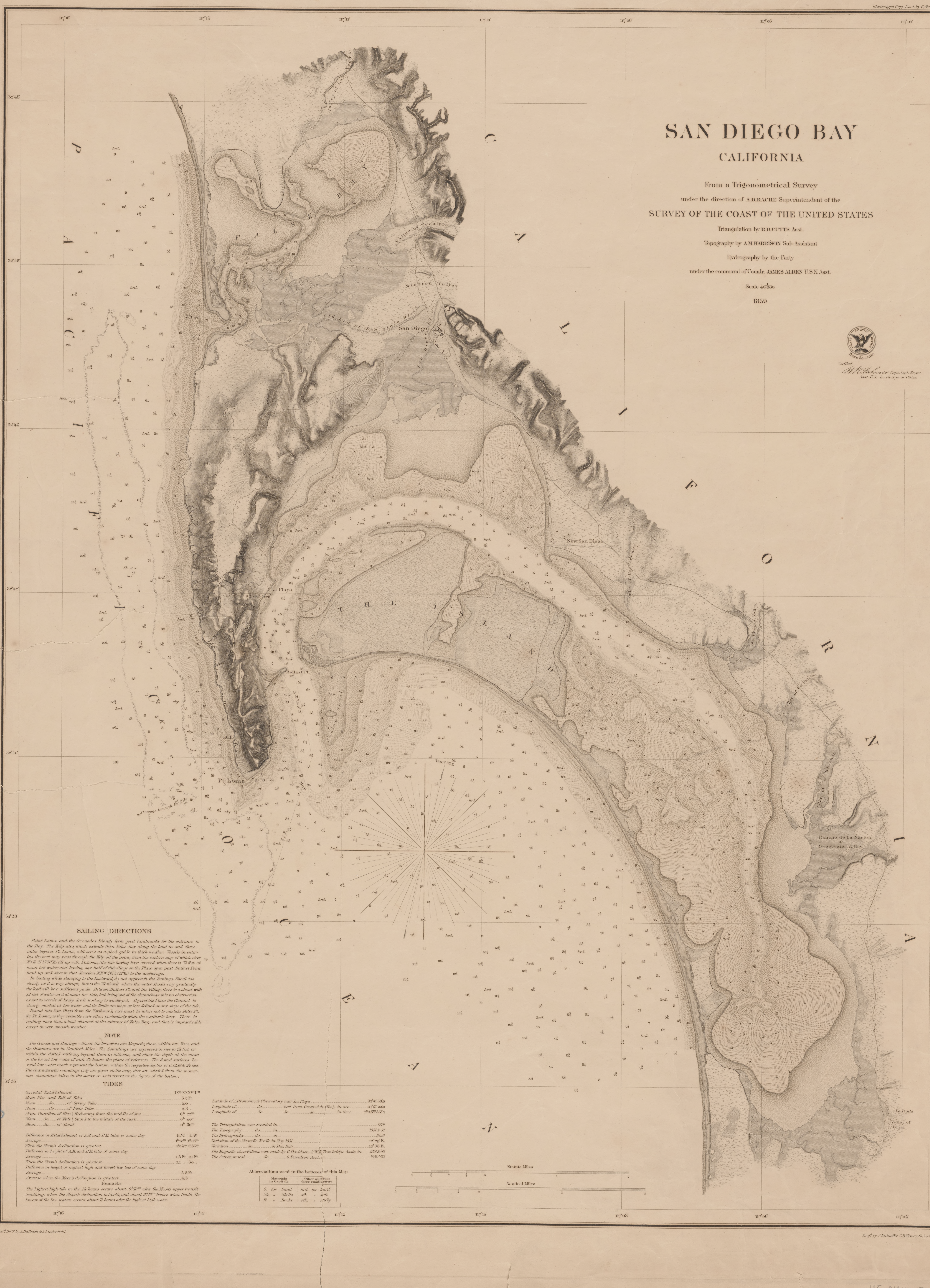
Electrotype Copy No. 4. by G. Mathiot U.S.C.S.



SAN DIEGO BAY
CALIFORNIA

From a Trigonometrical Survey
under the direction of A.D. BACHE Superintendent of the
SURVEY OF THE COAST OF THE UNITED STATES
Triangulation by R.D. CUTTS Asst.
Topography by A.M. HARRISON Sub-Assistant
Hydrography by the Party
under the command of Comdr. JAMES ALDEN U.S.N. Asst.
Scale $\frac{1}{40,000}$
1859

COAST SURVEY OFFICE U.S.
Price 50 cents

Verified
W.R. Palmer Capt. Topl. Engrs.
Asst. C.S. In charge of Office.

SAILING DIRECTIONS

Point Loma and the Coronados Islands form good landmarks for the entrance to the Bay. The Kelp also, which extends from False Bay along the land to, and three miles beyond Pt. Loma, will serve as a good guide in thick weather. Vessels in entering the port may pass through the Kelp off the point, from the eastern edge of which steer N.½E. (N.17°30'E.) till up with Pt. Loma, (the bar having been crossed when there is 22 feet at mean low water) and having, say half of the village on the Plaza open past Ballast Point, haul up and steer in that direction N.N.W.¼W. (N.12°W.) to the anchorage.

In beating while standing to the Eastward, do not approach the Zuninga Shoal too closely as it is very abrupt, but to the Westward where the water shoals very gradually the lead will be a sufficient guide. Between Ballast Pt. and the Village, there is a shoal with 12 feet of water on it at mean low tide, but being out of the channelway it is no obstruction except to vessels of heavy draft working to windward. Beyond the Plaza the Channel is clearly marked at low water and its limits are more or less defined at any stage of the tide.

Bound into San Diego from the Northward, care must be taken not to mistake False Pt. for Pt. Loma, as they resemble each other, particularly when the weather is hazy. There is nothing more than a boat channel at the entrance of False Bay, and that is impracticable except in very smooth weather.

NOTE

The Courses and Bearings without the breackets are Magnetic, those within are True, and the Distances are in Nautical Miles. The Soundings are expressed in feet to 24 feet, or within the dotted surfaces, beyond them in fathoms, and show the depth at the mean of the lowest low water of each 24 hours—the plane of reference. The dotted surfaces beyond low water mark represent the bottom within the respective depths of 6, 12, 18 & 24 feet. The characteristic soundings only are given on the map; they are selected from the numerous soundings taken in the survey so as to represent the figure of the bottom.

TIDES

Corrected Establishment	IXH XXXVIIIM
Mean Rise and Fall of Tides	3.7 Ft.
Mean do of Spring Tides	5.0 "
Mean do of Neap Tides	2.3 "
Mean Duration of Rise } Reckoning from the middle of one	$6^h\ 22^m$
Mean do of Fall { Stand to the middle of the next	$6^h\ 00^m$
Mean do of Stand	$0^h\ 30^m$

	H.W.	L.W.
Difference in Establishment of A.M. and P.M. tides of same day		
Average	$1^h 20^m$	$1^h 06^m$
When the Moon's declination is greatest	$2^h 04^m$	$1^h 36^m$
Difference in height of A.M. and P.M. tides of same day		
Average	1.5 Ft	2.1 Ft.
When the Moon's declination is greatest	2.2 "	3.0 "

Difference in height of highest high and lowest low tide of same day	
Average	5.5 Ft.
Average when the Moon's declination is greatest	6.3 "

Remarks

The highest high tide in the 24 hours occurs about $9^h 10^m$ after the Moon's upper transit (southing) when the Moon's declination is North, and about $3^h 16^m$ before when South. The lowest of the low waters occurs about 7¼ hours after the highest high water.

Latitude of Astronomical Observatory near La Playa	32°41'58".0
Longitude of do west from Greenwich Obs'y, in arc	117°13'22".0
Longitude of do do do in time	$7^h 48^m 53^s.7$
The Triangulation was executed in	*1851*
The Topography do in	*1851 & '52*
The Hydrography do in	*1856*
Variation of the Magnetic Needle in May 1851	12°29' E.
Variation do in Dec. 1857	12°36' E.
The Magnetic observations were made by G. Davidson & W.P. Trowbridge Assts. in	*1851 & '53*
The Astronomical do G. Davidson Asst. in	*1851 & '52*

Abbreviations used in the bottoms of this Map

Materials in Capitals	Other qualities three small letters
S. for Sand	*hrd. for hard*
Sh. " Shells	*sft. " soft*
R. " Rocks	*stk. " sticky*

Red.d Dr.ng by A. Balbach & A. Lindenkohl

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Ed. 1859

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Donated 11-21-61 Maurice Gardiner Holmes 4011 Chippewa Ct. San Diego 17